value of these experiments we hope will prove to be very great both directly and indirectly, and open up an immense field of crystallography in its relation to oils, fats, and waxes.

It has also naturally occurred to us that the formation of certain intricate structures by other insects may be also more or less directly due to crystalline or pseudo-crystalline formation *.

XIV.—*British Amphipoda of the Tribe* Hyperiidea *and the Families* Orchestiidæ *and some* Lysianassidæ. By Canon Norman, M.A., D.C.L., LL.D., F.R.S., &c.

I purpose in these notes to revise the species of British Amphipoda, and at the same time give an account of the Amphipoda procured during the North Atlantic Expeditions of the 'Porcupine,' 'Valorous,' 'Knight Errant,' and 'Triton.' The records of the larger number of the captures of these expeditions will fall under the British species, but in those instances where the species are not members of our fauna, that which relates to them will be enclosed in brackets.

The study of this group of Crustacea has been beset with difficulty, and in consequence of inadequate descriptions and illustrations old records of species must, in some instances, be received with caution. The publication of the splendid work of Professor G. O. Sars has supplied the student with most perfect descriptions and illustrations of the Amphipoda of Norway, which include by far the greater part of those known in our own fauna. If the critic is sometimes inclined to think that occasionally there are to be found in that work divergences described as specific which he would rather regard as varietal, after all it is a mere matter of opinion, and the author has at any rate directed our attention to modifications of character which are worthy of study. In Sars's work we recognize a standard authority, and the arrangement there set forth will here be followed.

I have only given references to such authors and papers as especially throw light upon the species and their more important synonymy. By way of shortening the references to the most frequently quoted authors, the following numbers will be employed. In those cases where the work was included in the list of works and papers on Isopoda lately given by me in the 'Annals' in my paper on "British Isopoda Chelifera"

* The cells of wasps, though hexagonal, have not the prismatic base of the bee-cell. Analysis shows that they contain typical wax crystals.

(Ann. & Mag. Nat. Hist. ser. 7, vol. iii. 1899, p. 317) I have here repeated the same prefix number as was there used :—

(1) Bate and Westwood.—'History of British Sessile-eyed Crustacea.' 1861–9.
(137) Boeck (A.).—"Crustacea Amphipoda borealia et arctica," Vid.-Selsk Forhand. 1870.
(138) Boeck (A.).—'De Skandinaviske og Arktiske Amphipoder.' 1872–6.
(139) Della Valle (A.) —'Fauna und Flora des Golfes von Neapel.' 20. Monographie : Gammarini. 1893.
(140) Hansen (H. J.).—"Oversigt over de paa 'Dijmphna'-Togtet indsamlede Krebsdyr," 'Dijmphna'-Togtets zoologiske-botaniske Udbytte. 1886.
(141) Hansen (H. J.).—"Oversigt over det vestlige Grönlands Fauna af Malakostrake Havskrebsdyr," Vidensk. fra den Naturf. Foren. i Kjöbenhavn. 1887.
(71) Meinert (Fr.).—Crustacea Malacostraca in Petersen's "Det Videnskabelige Udbytte kanonbaden 'Hauchs' Togter ia de Danske Have indenfor Skagen 1883–86." 1888–9.
(102) Sars (G. O.).—"Oversigt af Norges Crustaceer med forelöbege Bemærkninger over de nye eller mindre bekjendte Arter. I.," Vid.-Selsk. Forhand. 1882.
(104) Sars (G. O.).—'Norwegian North Atlantic Expedition, 1876–78,' Crustacea, i. 1885, ii. 1886.
(142) Sars (G. O.).—'An Account of the Crustacea of Norway,' vol. i. Amphipoda, 1890–95.

With respect to localities given, specimens are in my own collection from all habitats by whomsoever collected which precede the indication *Mus. Nor.* As at my death my collections will be deposited in the Brit. Mus. it will be known where types and specimens thus indicated can be examined in case of doubt attaching to species. As regards all other habitats given, the authority for them is that of the carcinologists whose name is added.

In the case of those whose names will thus most frequently occur, I shall employ, for brevity's sake, their initials as follows :—

A. M. N.—A. M. Norman.
D. R.—David Robertson. The localities are taken from his two papers on the Amphipoda and Isopoda of the Firth of Clyde. (Trans. Nat. Hist. Soc. Glasgow, vol. ii. 1888 and vol. iii. 1892.)

T. S.—Thomas Scott. Localities taken from his numerous papers on the Crustacea of Scotland, for the most part published in the Reports of the Fishery Board of Scotland.

A. O. W.—Alfred O. Walker. With respect to the Crustacea of the district of Liverpool and the Isle of Man, I have depended on his 'Revision of the Amphipoda of the L.M.B.C. District,' as being the corrected list. Most of Mr. Walker's papers are published in the Trans. Liverpool Biol. Assoc.; others will be referred to; but one should be here mentioned as it does not embrace any descriptions of species, but contains a good list of Channel Island Amphipods: "Report on the Schizopoda, Cumacea, Isopoda, and Amphipoda of the Channel Islands," by A. O. Walker and J. Hornell (Journal of Marine Zoology and Microscopy, vol. ii. 1896.)

AMPHIPODA.

Tribe I. Hyperiidea.

Fam. I. **Hyperiidæ.**

Genus 1. Hyperia, Latreille.

(Syn. *Lestrigonus*, M.-Edw., ♂.)

1. *Hyperia galba*, Montagu.

1863. *Hyperia galba*, B. & W. (1) vol. ii. p. 12, ♀.
1863. *Lestrigonus exulans* (Kröyer), B. & W. (1) vol. ii. p. 5, ♂.
1863. *Lestrigonus Kinahani* (Bate), B. & W. (1) vol. ii. p. 8, ♂.
1869. *Hyperia galba*, Norman, "Last Report Dredging Shetland Isles," Brit. Assoc. Rep. for 1868, p. 286, ♂ ♀.
1872. *Hyperia medusarum*, Boeck (*nec* Müller), p. 79, pl. ii. fig. 1.
1887. *Hyperia Latreillei* (M.-Edw.), Bovallius, Contrib. Mon. Amphip. Hyperiidea, pt. 1 (Kong. Sv. Vet.-Akad. Hand. vol. xxi. no. 5), p. 164, pl. ix. figs. 31–43, pl. x. figs. 1–17.
1887. *Hyperia galba*, id. ibid. p. 180, pl. x. figs. 25–32.
1887. *Hyperia spinigera*, id. ibid. p. 191, pl. x. figs. 33–39.
1890. *Hyperia galba*, Sars, (142) p. 7, pl. ii. & pl. iii. fig. 1.

Hab. Shetland; East of Scotland; Plymouth; Birturbuy Bay (*A. M. N.*); 55 miles off Valentia, Ireland, 'Porcupine,' 1869; Banff (*T. Edward*): *Mus. Nor.* Firth of Clyde (*A. M. N.*); Anglesea (*A. O. W.*); Mull (*G. Brook*); Firth of Forth (*Cunningham*); St. Andrews (*McIntosh*); Loch Fyne and Moray Firth (*T. S.*).

Distrib. Arctic regions from Greenland to Murman coast, Norway, the Baltic, west coast of France.

As I pointed out in my Shetland Report of 1868, *Lestrigonus exulans* and *Lestrigonus Kinahani* of Bate and West-

wood are different stages of development of the male of this species. Bovallius regards *Hyperia Latreillei*, M.-Edw., as a distinct species; but I agree with Sars in considering that the differences indicated are insufficient for specific distinction, and are in a great measure dependent on the ages of the individuals examined. Yet, further, I am unable to hold the *Hyperia spinigera*, Bovallius, as entitled to specific rank. The chief characters assigned are the spination of the two pairs of gnathopods and the form of the uropods. With respect to the gnathopods, I find that in young specimens of *H. galba* the spines are sparingly developed, in middle-sized individuals they become more numerous; in large examples I find them, as in *H. spinigera* (Bovallius, *l.c.* pl. x. figs. 34–36), encircling the extremities of the carpus of the gnathopods and well developed at the dorsal corners. The other points Bovallius especially emphasizes are the short branches of the last uropods. Now in the male sex the branches of the last uropods are always shorter than are those of the female (compare Sars, pl. ii. fig. *us* and pl. ii. fig. 1 *us*); and it is a male which is the subject of Bovallius's figures. Should other authors disagree with my views in this matter, the female specimens of *H. galba* taken by me at Birturbuy Bay and the one taken off Valentia by the 'Porcupine' are, from the character of their gnathopods, to be referred to *H. spinigera*.

The *Cancer medusarum* of Müller's 'Prodromus' was applied by O. Fabricius, in his 'Fauna Grœnlandica,' under the name *Oniscus medusarum*, to *H. galba*, and he has been followed by many authors. The *Metoecus medusarum* (Fabr.), Kröyer and other authors, is *Hyperoche tauriformis* (Bate & Westwood*). Lastly, Bovallius, Hansen, and Sars now consider the specific name *medusarum* (*Cancer medusarum*, Müller) to belong to *Hyperia spinipes* of Boeck. Müller applied the specific name to the animal described by Ström, and they doubtless think that weight must be attached to Ström's description of the first two pairs of legs as "hirsute and fluffy, truncated at the apex." *Hyperia medusarum* (Müller) thus considered, of which the *H. spinipes*, Boeck, becomes a synonym, has not yet been found in our seas. *Talitrus cyaneæ*, Sabine, is indeed regarded as a synonym of *H. medusarum* (=*spinipes*), but what the *Hyperia cyaneæ* of Bate and Westwood (vol. ii. p. 521) may be it seems

* I first found this species in Shetland, and soon afterwards T. Edward procured it at Banff, and sent a specimen to me and another to Bate. I recorded the specimens I had seen in my Shetland report as *Metoecus medusarum*, Kröyer; Bate and Westwood did not recognize Edward's specimen as a known form, and described it as *Hyperia tauriformis*, a name which now stands.

impossible to say. They compare it to *Hyperia galba*; but the following sentence in the description of this small form, "rather more than three-twentieths of an inch long," found by Edward at Banff, is very puzzling:—"Dactyli of three posterior pairs of pereiopoda long, sharp, and *furnished with a bunch of cilia in the middle.*"

Genus 2. Hyperoche, Bovallius.

[Syn.=*Metoecus*, Kröyer (in use)=*Tauria*, Boeck (not Dana).]

2. *Hyperoche tauriformis* (Bate & Westwood).

1838. *Metoecus medusarum*, Kröyer, Grönlands Amfipoder, p. 288, pl. iii. fig. 15.
1869. *Metoecus medusarum*, Norman, "Last Report Dredging Shetland Isles," Brit. Assoc. Rep. for 1868, p. 287.
1869. *Hyperia tauriformis*, Bate & Westwood, (1) vol. ii. p. 519.
1872. *Tauria medusarum* and *Tauria abyssorum* †, Boeck, (138) pp. 82 & 83, pl. i. fig. 2.
1889. *Hyperoche Kröyeri*, Bovallius, *l. c.* p. 87; *Hyperoche abyssorum*, p. 94; *Hyperoche Lütkeni*, p. 97, pl. vii. figs. 1–26; and *Hyperoche tauriformis*, p. 115.
1890. *Hyperoche Kröyeri*, G. O. Sars, (142) p. 9, pl. iv.

Hab. Banff (*T. Edward*); Shetland (*A. M. N.*): *Mus. Nor.* Firth of Forth; Firth of Clyde; Loch Fyne (*T. Scott*); near Puffin Island, N. Wales (*A. O. W.*).

Distrib. Faroe Channel, 'Triton' Exped. (*Sir J. Murray*); Greenland, and lat. 52° 53′ N., long. 23° 44′ W., surface, in great abundance, 'Valorous' 1870: *Mus. Nor.* The species has an arctic range from Siberia to Greenland.

2*. *Hyperoche prehensilis* (Bate & Westwood).

1869. *Hyperia prehensilis*, Bate & Westwood, (1) vol. ii. p. 540.
1885. *Hyperoche prehensilis*, Bovallius, System. List of Amphip. Hyperiid. (K. Svenska Vet.-Akad. Handl. vol. ii.), p. 19 (sep. copy).
1889. *Hyperoche prehensilis*, Bovallius, Contrib. &c. p. 93.

The only known example "was taken at Banff by Mr. T. Edward." The characteristic feature is the subchelate character of the posterior pairs of peræopods; but this character Bovallius thinks may be a feature depending only on the young stage of the animal. Indeed Fr. Müller has described just such a difference in the posterior peræopods in his *Hyperoche Martinezii*, in which species these legs are prehensile in the young (as in *H. prehensilis*) and simple in the adult (as in *H tauriformis*). It would appear therefore that the former will probably be proved to be the young stage

† First described by Boeck in 1870.

* I repeat the previous number here with an asterisk, because I regard *H. prehensilis* as not a satisfactorily established British species; and similarly repeated numbers must be interpreted in the same way throughout these papers.

of the latter species. (Vide *H. Martinezii*, Bovallius, 1889, p. 107.)

Genus 3. Parathemisto, Boeck.

3. *Parathemisto oblivia* (Kröyer).

1838. *Hyperia oblivia*, Kröyer, Grönlands Amfip. p. 70, pl. iv. fig. 19.
1869. *Hyperia oblivia*, Norman, "Last Report Dredging Shetland Isles," Brit. Assoc. Rep. for 1868, p. 287.
1890. *Parathemisto oblivia*, Sars, (142) p. 10, pl. v. fig. 1.

It is also *Parathemisto abyssorum* of Boeck and *Parathemisto oblivia* of Bovallius.

Hab. Shetland (*A. M. N.*); Banff (*T. Edward*); St. Andrews (*McIntosh*); 25 miles off May Island, Firth of Forth (*Sir J. Murray*): *Mus. Nor.* Off the mouth of the Tees (*G. S. Brady*); Moray Firth, Firth of Forth, and 70–80 miles off mouth of the Humber (*T. S.*); surface-net at Sanda Pay, near Mull of Cantyre (*D. R.*); off Gally Head, Co. Cork (*A. O. W.*); Valentia and Dingle Bay (*Rev. W. S. Green*).

Distrib. Faroe Channel, 'Triton' (*Sir J. Murray*); Knævanger Fiord, Finmark (*J. S. Schneider*): *Mus. Nor.* Norway and off Jan Mayen (*G. O. Sars*); Kara Sea (*Hansen*); Greenland (*Kröyer*); Bay of Biscay, 950 metres, 'Caudan' (*J. Bonnier*).

3*. *Parathemisto gracilipes* (Norman).

1863. *Hyperia oblivia*, Bate & Westwood, (1) vol. ii. p. 16.
1869. *Hyperia gracilipes*, Norman, "Last Report Dredging Shetland Isles," Brit. Assoc. Rep. for 1868, p. 287.
1887. *Parathemisto longipes*, Bovallius, "Syst. List of Amphip. Hyperiidea," Bih. t. K. Sv. Vet.-Akad. Hand. vol. xi. no. 16, p. 21.
1889. *Parathemisto gracilipes*, Bovallius, "Contrib. to Monog. Amphip. Hyperiidea," K. Sv. Vet.-Akad. Hand. vol. xxii. no. 7, p. 268.

In 1868 I pointed out that Bate and Westwood's *H. oblivia* was not that of Kröyer; and as no other specimen has since been found, I cannot help suspecting that Bate has described and figured the second limb of the first gnathopods as the second gnathopod: if so *P. gracilipes* may hereafter become a synonym of Kröyer's species.

Hab. Banff (*T. Edward*) *.

* In confirmation that Bate and Westwood's figure is incorrect, it may be noticed that the figure is taken from a specimen sent to the authors by the late Thomas Edward of Banff. Now I have specimens of the true *P. oblivia* received from him, and in T. Edward's "Stray Notes on some of the smaller Crustaceans," Journ. Proc. Linn. Soc. vol. ix. 1867, pts. 143 and 166, we are told that "*H. oblivia*" occurs in enormous shoals at times in the Moray Firth, filling the rock-pools "with literally one living mass" and cast up on the shore as "a ridge or wall extending more than one hundred feet in length, and varying from one to two inches in height and breadth."

Genus 4. Euthemisto, Bovallius.

4. *Euthemisto compressa* (Goës).

1865. *Themisto compressa*, Goës, "Crust. Amphip. Maris Spetsbergiam alluentis, etc.," Œfvers. K. Vet.-Akad. Förh. p. 533, pl. xli. fig. 34.
1878. *Lestrigonus spinidorsalis*, Spence Bate, "Two new Crustacea from the Coast of Aberdeen," Ann. & Mag. Nat. Hist. ser. 5, vol. i. p. 411, fig. 2, and as *Hyperia spinidorsalis*, id. ibid. vol. ii. p. 489.
1892. *Euthemisto compressa*, Norman, "Rare Crustacea on the Yorkshire Coast," 'The Naturalist,' p. 175.
1895. *Euthemisto compressa*, Sars, (142) p. 12, pl. v. fig. 2.

Bovallius has joined *Euthemisto bispinosa*, Boeck, with this species; but the remarkable spination of the propodos of the third peræopods (see Sars, pl. vi. fig. 2, *p.* 5), which is the chief distinguishing character of that species, as indicated by Sars, and as I find in Greenland specimens of *E. bispinosa*, seems to distinguish them.

Hab. Redcar, Yorkshire, in extraordinary profusion, thrown up upon the beach, April 4, 1892 (*T. H. Nelson*) : *Mus. Nor.* Aberdeen (*Spence Bate*); 70–80 miles E. by N. of mouth of the Humber (*T. S.*).

Distrib. Davis Strait and Greenland, 'Valorous,' 1875; lat. 52° 33′ N., long. 26° 44′ W., and lat. 59° 16′ N., long. 37° 16′ W., 'Valorous,' 1875; Faroe Channel 'Triton,' 1882 (*Sir J. Murray*) : *Mus. Nor.* Norway and Jan Mayen (*G. O. Sars*).

5. *Euthemisto libellula* (Mandt).

1822. *Gammarus libellula*, Mandt, Observationes in Historiam Naturalem et Anatomiam Comparatam in itinere Groelandiæ factæ, p. 32.
1838. *Themisto crassicornis*, Kröyer, Grönlands Amfipoder, p. 295, pl. iv. fig. 17.
1838. *Themisto arctica*, id. ibid. p. 291, pl. iv. fig. 16.
1869. *Themisto crassicornis*, Bate & Westwood, (1) vol. ii. p. 522.
1887. *Euthemisto Nordenskiöldi*, Bovallius, "Arctic and Antarctic Hyperids," 'Vega' Exped. Vetensk. Iakttagelser, vol. iv. p. 570, pl. xlvii. figs. 104–110.
1895. *Euthemisto libellula*, Sars, (142) p. 13, pl. vi. fig. 1.

It is the *Themisto libellula* of Goës and the *Euthemisto libellula* of Bovallius.

Hab. Banff (*T. Edward*, fide *Bate*).

Distrib. Davis Strait and Greenland, 'Valorous,' 1875; Jan Mayen, Austro-Hungarian Exped. : *Mus. Nor.* In shoals on north and east coasts of Finmark (*G. O. Sars*); and Arctic region generally from Siberia to Greenland.

A good specific character by which the species may be at once recognized is that the nail of the third and longest peræopods bears a comb-like set of long spines.

[*Euthemisto bispinosa*, Boeck.

1870. *Themisto bispinosa*, A. Boeck, (137) p. 8.
1872. *Themisto bispinosa*, Boeck, (138) p. 87, pl. i. fig. 4.
1887. *Euthemisto bispinosa*, Bovallius, "Arctic and Antarctic Hyperids," 'Vega' Exped. Vetenskap. Iakttag. vol. iv. p. 569, pl. xlvi. figs. 97 103.
1890. *Euthemisto bispinosa*, G. O. Sars, (142) p. 14, pl. vi. fig. 2.

Taken by the 'Valorous,' 1875, in Davis Strait and in the two following places in the North Atlantic: lat. 42° 8′ N., long. 63° 39′ W., and lat. 60° 24′ N., long. 49° 57′ W. Also taken in the Faroe Channel by the 'Triton,' 1882.

Distrib. Off Martha's Vineyard, N.E. America (*U.S. Nat. Mus.*); Gulf of Maine and 87 miles S. of Block Island, N.E. America (*Prof. S. I. Smith*): *Mus. Nor.* Sars has taken it on the coast of W. Finmark.

I entirely agree with Sars in regarding this as quite distinct from *Euthemisto compressa*; the length and very peculiar spinal armature of the third peræopoda are evident in young as well as old specimens.]

Fam. II. Phronimidæ.

Genus Phronima, Latreille.

6. *Phronima sedentaria* (Forskål).

1863. *Phronima sedentaria*, Bate & Westwood, (1) vol. ii. p. 23.
1872. *Phronima sedentaria*, Claus, "Naturgeschichte der *Phronima sedentaria*," Zeits. f. wiss. Zool. vol. xxii. p. 331, pls. xxvi., xxvii.
1879. *Phronima sedentaria*, Claus, "Der Organismus der Phronimiden," Zool. Instit. zu Wien, vol. ii. pl. ii. figs. 11–14, pls. iii.–viii.
1889. *Phronima sedentaria*, Bovallius, "Contrib. Mon. Amphip. Hyperiidea," Kong. Sv. Vet.-Akad. Handl. vol. xxii. p. 354, pl. xvi. figs. 1–3.

Phronima custos, Risso, *P. borneensis*, Bate, and *P. novæ-zealandiæ* are regarded by Bovallius as synonyms of this species.

Hab. Taken off the S.W. of Ireland, August 1890, by the Rev. W. S. Green (*A. O. W.*).

Distrib. Naples (Zool. Stat.): *Mus. Nor.* Atlantic and Mediterranean, and it would seem also the Pacific.

Fam. III. Tryphænidæ.

Genus 1. Tryphæna, A. Boeck.

7. *Tryphæna Malmii*, Boeck.

1870. *Tryphana Malmii*, Boeck, (137) p. 9.
1872. *Tryphana Malmii*, Boeck, (138) p. 91, pl. i. fig. 3.
1887. *Tryphæna Nordenskiöldi*, Bovallius, "System. List Amphip.

Hyperiid.," Bihang till K. Sv. Vet.-Ak. Handl. vol. xi. p. 30; and "Arctic and Antarctic Hyperids," 'Vega' Exped. Vetensk. Iakttag. vol. iv. p. 573 (the male).

1888. *Tryphana Boecki*, Stebbing, Report 'Challenger' Amphipoda, p. 1539, pl. cxciv. (the male).

1890. *Tryphæna Malmi*, Sars, (142) p. 17, pl. vii.

Hab. Banff (*T. Edward*): *Mus. Nor.*

Distrib. It is known from Norway, the Faroe Isles, and North Atlantic, lat. 18° 8′ N., long. 30° 5′ W. (*Stebbing*).

[Genus 2. Brachyscelus, Spence Bate, 1861.

= *Thamyris*, Spence Bate, 1862.
= *Schnehagenia*, Claus, 1871.

[*Brachyscelus crustulum*, Spence Bate.

1861. *Brachyscelus crustulum*, Spence Bate, Ann. & Mag. Nat. Hist. ser. 3, vol. viii. p. 7, pl. ii. figs. 1, 2.

1862. *Brachyscelus crustulum*, Spence Bate, Cat. Amphip. Brit. Mus. p. 333, pl. liii. figs. 2, 3.

1887. *Thamyris crustulum*, Bovallius, "Syst. List Amphip. Hyperiid.," Bihang till K. Svensk. Vet.-Akad. Hand. vol. xi. p. 31.

1887. *Thamyris mediterranea*, Claus, Die Platysceliden, p. 60, pl. xvi. figs. 11–18, ♂ jun.

1888. *Brachyscelus crustulum*, Stebbing, Report 'Challenger' Amphip. p. 1544, pls. cxcv., cxcvi., ♂.

1893. *Brachyscelus crustulum*, Chevreux, Bull. Soc. Zool. de France, vol. xviii. p. 70, & woodcuts.

A young male specimen taken by the 'Triton' in the Faroe Channel in 1882, the exact locality not preserved.

Distrib. Naples (Zool. Stat.): *Mus. Nor.* In stomachs of the Tunny between the coasts of France and the Azores (*Chevreux*); North Pacific, 'Challenger' (*Stebbing*).

The Faroe Channel specimen is a very young male. Full-grown females from Naples, whence Claus procured the small male which he called *Thamyris mediterranea*, agree with Stebbing's description and figures and those of Chevreux of *B. crustulum*. It also seems questionable whether *T. globiceps*, Claus, is a valid species. The occurrence of this genus so far north as the Faroe Channel is very interesting. It was taken in the towing-net at a depth of several hundred fathoms.]

[Genus 3. Lycæa, Dana.

[*Lycæa robusta*, Claus.

1887. *Lycæa robusta*, Claus, Die Platysceliden, p. 63, pl. xix. figs. 2–10.

A single specimen, 'Porcupine,' 1870, Mediterranean. Claus's specimens were from Messina and Naples.]

[Fam. IV. Scinidæ.

[Genus Scina, Prestandrea.

[*Scina borealis*, G. O. Sars.

1886. *Clydonia borealis*, G. O. Sars, (102) i. p. 75, pl. iii. fig. 1.
1887. *Tyro borealis*, Bovallius, "Arctic and Antarctic Hyperids," 'Vega' Exped. Vetensk. Iakttag. vol. iv. p. 551.
1887. *Tyro borealis*, Bovallius, "Contrib. Monog. Amphip. Hyperiidea, pt. i.," Kong. Sv. Vet.-Akad. Hand. vol. xxi. p. 16.
1890. *Scina borealis*, G. O. Sars, (142) p. 20, pl. viii.

Hab. 'Triton,' 1882, Faroe Channel, tow-net down to 300 fathoms (*Sir J. Murray*).

Distrib. Lofoten Islands, 300 fathoms; Bejan at outer part of Trondhjem Fiord, and at Hanko, Christiania Fiord, 100–150 fathoms (*G. O. Sars*); Bay of Biscay, 960 metres, 'Caudan' (*J. Bonnier*).]

Fam. V. Lanceolidæ.

Genus Lanceola, T. Say.

S. *Lanceola Sayana*, Bovallius.

1885. *Lanceola Sayana*, Bovallius, "Some forgotten Genera among the Amphipodous Crustacea," Bih. t. K. Sv. Vet.-Akad. Hand. vol. x. no. 14, p. 7, figs. 1, 1 *a*, 1 *b*.
1887. *Lanceola Sayana*, Bovallius, "Contrib. to Monog. of Amphip. Hyperiidea," K. Sv. Vet.-Akad. Hand. vol. xxi. no. 5, p. 30, pl. iv. figs. 1–19, pl. v. fig. 1.

Hab. 'Porcupine,' 1869, Stat. 22, lat. 56° 8′ N., long. 13° 34′ W.; south of Rockall, a single specimen: *Mus. Nor.*

Distrib. North and South Atlantic (*Bovallius*).

This species is stated by Bovallius to be "one of the largest of all the Amphipoda, measuring 30–42 millim." The 'Porcupine' specimen is only 5 millim. long. Nevertheless, in most essential points, such as general character, the gnathopods, the structure and proportional lengths of the peræopods, &c., it agrees with *L. Sayana*. The lower antennæ have the penultimate joint shorter in proportion to the last, and the telson is not quite so long as the basal joint of the last uropods. Bovallius lays stress upon this last character as specific throughout the genus; but age may easily make a difference in it. In form the telson corresponds to that of *L. Sayana*.

[*Lanceola Murrayi*, n. sp.

First gnathopods with a group of about six slender spines on the posterior lobes of the meral joint; carpus, as usual, somewhat cup-shaped, distal breadth only slightly exceeding greatest length, the extremity set round with slender spines;

propodos as long as carpus and narrower at the base than the extremity of carpus, one and half times as long as greatest breadth, widest near the base, thence with slightly convex margins evenly tapering to the extremity; anterior margin bearing about four slender spines; posterior margin serrated throughout, and bearing five or six long slender spines; nail equalling rather more than one-third the length of the hand, slightly serrulated quite at the base.

Second gnathopods with carpus and manus subequal in length, the length of neither exceeding two and a half times the breadth, each widest at their junction with the other, the former widening slightly distally to receive the latter; carpus with two or three small setæ on anterior border and two distal setæ; hand tapering from the base to the extremity, where it is just wide enough to receive the nail; anterior margin with three spines and two distal ones; posterior margin minutely serrulated throughout, with three slender spines about the middle and two distal spines; nail nearly straight, one-third as long as the hand, with finely serrated edge.

First peræopods with the hand longer than the wrist, inner margin of each with five or six small spines at about equal distance from each other; outer margin naked; nail long and slender, about one-fourth the length of the hand.

Hinder peræopods with the hand somewhat longer than the wrist; the curved dactylus and its sheath as usual in the genus.

Telson equals two-thirds the length of the basal joint of the last uropods; these latter with the branches narrowly lanceolate, the branches of the second pair still narrower.

This appears to differ from all described species. The first gnathopods in their less expanded wrist and proportionately longer hand differ from most species, but approach Bovallius's figure of *L. felina* (if the hand were a little longer in that species); the second gnathopods are most like those of *L. Sayana*. Bovallius does not mention or figure in any species the serration of the margin of hand and finger in this gnathopod, and *Lanceola Loveni* is the only species in which serration of margin of first gnathopods is recorded. The telson and uropods are nearly as in *L. serrata*. *L. pacifica*, Stebbing ('Challenger'), comes nearest to *L. Murrayi* as regards the gnathopods, but the telson and uropods are quite different.

A single specimen taken by tow-net sunk to 640 fathoms in the Faroe Channel: 'Triton,' 1882, Stat. 8 (*Murray*).]

Fam. VI. Vibiliidæ.

Genus Vibilia, H. Milne-Edwards.

9. *Vibilia borealis*, Bate & Westwood.

1869. *Vibilia borealis*, Bate & Westwood, (1) vol. ii. p. 524.
1887. *Vibilia Kroyeri*, Bovallius, "System. List of Amphipoda Hyperiidea," Bih. t. K. Sv. Vet.-Akad. Hand. vol. xi. no. 16, p. 8.
1887. *Vibilia Kröyerii*, Bovallius, "Arctic and Antarctic Hyperids," 'Vega' Exped. Vetensk. Iakttag. vol. iv. p. 555.
1887. *Vibilia borealis*, Bovallius, "Contrib. Monog. Amphip. Hyperiidea," K. Sv. Vet.-Akad. Hand. vol. xxi. no. 5, p. 57.
1887. *Vibilia Kröyeri*, id. ibid. p. 58, pl. viii. figs. 18–25.

Hab. Two specimens from Thomas Edward, taken at Banff, Scotland: *Mus. Nor.*

Distrib. West Coast of Greenland (*Bovallius*).

On referring to Edwards's own notes it is clear that Bate and Westwood have erroneously applied the profusion which Edwards saw in *Parathemisto oblivia* to *Vibilia*.

In drawing up the specific characters of *C. borealis* to distinguish it from other species, Bovallius writes:—"As the specific character given by Bate and Westwood is applicable to several of the known *Vibiliæ*, the diagnosis here is taken from the generic characters of the authors compared with the drawing." The brief diagnosis of the two species is as follows:—

The head is not rostrate.
a. The pereional segments are dorsally smooth.
aa. The fifth and sixth pairs of pereiopoda are scarcely longer than the third and fourth pairs.
aaa. The femora of the first and second pairs of pereiopoda (*i. e.* the gnathopods) are narrow.
1. The peduncles of the uropoda are shorter than the rami..... *V. borealis*, B. & W.
2. The peduncles of the uropoda are longer than the rami ..... *V. Kröyerii*, Bov.

Respecting the uropoda, Bovallius has taken the character of *V. borealis* from B. & W.'s woodcut, and while he has adopted the *generic* characters, in certain respects he has taken no notice of the statement "*Three posterior pairs of pleopoda with the peduncle long and the rami short and compressed.*" This description of the uropods agrees with my specimens received from Edward, and thus does away with the assumed difference of *V. Kröyeri* and *V. borealis*.

Tribe II. Gammaridea.

Fam. I. Orchestiidæ.

Genus 1. Talitrus, Latreille.

10. *Talitrus locusta* (Pallas).

1861. *Talitrus locusta*, Bate & Westwood, (1) vol. i. p. 16.
1899. *Talitrus locusta*, G. O. Sars, (142) p. 23, pl. ix.

Hab. All round our coasts in suitable places, among decaying weeds at high-water mark on sandy shores.

Distrib. The whole coasts of Europe from Norway southwards, extending to the Black Sea; Azores (*Barrois*); Madeira (*Morelet*).

Genus 2. Hyale, Rathke.

(=*Allorchestes*, Dana, ♂, =*Nicea*, Nicolet, ♀.)

11. *Hyale Nilssoni* (Rathke).

1861. *Allorchestes Nilssonii*, Bate & Westwood, (1) vol. i. p. 40.
1890. *Hyale Nilssoni*, Sars, (142) p. 26, pl. xi. fig. 1.

It is *Orchestia nidrosiensis* of Kröyer.

Hab. Torquay (*Stebbing*); St. Andrews (*McIntosh*); Firth of Clyde (*D. R.*); Berehaven, Ireland (*Prof. Haddon*): *Mus. Nor.* Jersey (*Kœhler*); Firth of Forth and Loch Fyne (*T. S.*); Liverpool district and Valentia, Ireland (*A. O. W.*).

Distrib. Valencia, Spain (*P. Antiga*); Trondhjem Fiord, Norway (*A. M. N.*): *Mus. Nor.* South and West Norway (*G. O. Sars*); Sweden, Denmark, West France (*Chevreux*); Azores (*Barrois*).

12. *Hyale Lubbockiana* (Bate).

1861. *Allorchestes imbricatus*, Bate & Westwood, (1) vol. i. p. 43, ♂.
1861. *Nicea Lubbockiana*, Bate & Westwood, (1) vol. i. p. 47, ♀.
1876. *Hyale Lubbockiana*, Stebbing, Ann. & Mag. Nat. Hist. ser. 4, vol. xvii. p. 337, pl. xviii. fig. 2 *a–d*.
1879. *Hyale Lubbockiana*, id. ibid. ser. 5, vol. iv. p. 396.
1890. *Hyale Lubbockiana*, Sars, (142) p. 27, pl. xi. fig. 2.

There has been great confusion between the species of this genus. Boeck confused the two British species of *Hyale*, and his figures of the entire animal of his *Hyale Nilssoni*, and of the second gnathopod of the male, "undoubtedly," as Sars says, represent *H. Lubbockiana*.

Della Valle, with Stebbing's and Sars's clear definitions of the two species before him, actually makes the *H. Lubbockiana* of Sars a synonym of his *H. pontica*, Rathke, which he makes =*H. Nilssoni*, Rathke, and keeps *H. Lubbockiana* of Bate and Stebbing as a species distinct from that of Sars! A glance with even a hand-lens at the propodos of the peræopods of the true *H. Lubbockiana* is sufficient at once to recognize the species on account of the two remarkable large serrated spines with which it is armed. These spines are shown in Bate and Westwood's figure *k*, in Stebbing's fig. 2 *c*, in Sars's fig. 2, *p.* 7, and are even sufficiently indicated in Boeck's small figure of the entire animal of his "*H. Prevostii*," to show that the figure really represents *H. Lubbockiana*. On the other hand, it is clear that the species described by Della Valle as *H. Lubbockiana* cannot

be that species, inasmuch as these peculiar spines are not to be seen on the large figures he gives of the peræopods.

Hab. Bantry, Ireland (*A. M. N.*); Torbay and Banff (*Stebbing*): *Mus. Nor.* Jersey and Sark (*Sinel and Hornel*); Isle of Cumbrae (*D. R.*).

Distrib. South and West Norway (*Sars*); Western France and Algiers (*Chevreux*).

Genus 3. Orchestia, Leach.

13. *Orchestia littorea* (Montagu).

1861. *Orchestia littorea*, Bate & Westwood, (1) vol. i. p. 27.
1869. *Orchestia brevidigitata*, Bate & Westwood, (1) vol. ii. p. 497 (see Barrois, 'Note sur quelques points de la Morphologie des Orchestes,' Lille, 1887, p. 13).
1890. *Orchestia littorea*, Sars, (142) p. 24, pl. x.

It is also *Talitrus tripudians* of Kröyer and *Orchestia cuchore* of F. Müller. B. & W. refer it to *Cancer gamarellus* of Herbst, but that author's figure certainly does not agree, and is in fact more like *O. mediterranea*. The description of *Oniscus gammarellus* in Pallas's 'Spicilegia,' moreover, cannot, I think, be reconciled with this species.

Hab. Diffused in suitable localities round our coasts. Like *Talitrus* it is found beneath decaying seaweed, but in this case only when the seaweed is lying on pebbles, or pebbles and sand, and it is not found in pure sand, which is the habitat of *Talitrus*.

Distrib. On the West Norwegian coast as far north as the Trondhjem Fiord (*Sars*), thence southward throughout the Atlantic coasts of Europe to the Mediterranean and Black Sea (*Czerniavsky*); Madeira (*Morelet*); Azores (*Barrois*).

14. *Orchestia mediterranea*, A. Costa.

1861. *Orchestia mediterranea*, Bate & Westwood, (1) vol. i. p. 31.
1893. *Orchestia chilensis*, Dalla Valle, (139) p. 498, pl. ii. fig. 8 and pl. xv. figs. 31–38.
1899. *Orchestia mediterranea*, T. Scott, Rep. Fishery Board of Scotland, p. 264, pl. xiii. figs. 9–11.

Hab. As yet there is no record of this species occurring on the eastern shores of our islands, nor further north than the Firth of Clyde on the west. Weymouth and Inverary (*A. M. N.*): *Mus. Nor.* Topsham and Exmouth Warren (*Parfitt*); between Fairlie and Hunterston, Firth of Clyde (*T. Scott*).

Distrib. Adriatic (*Prof. Heller*); Naples (*Della Valle*): *Mus. Nor.* West France (*Chevreux*).

Genus 4. Orchestoidea, Nicolet.

15. *Orchestoidea Deshayesii* (Audouin).

1861. *Orchestia Deshayesii*, Bate & Westwood, (1) vol. i. p. 36.
1887. *Orchestia Deshayesii*, Th. Barrois, Note sur quelques points de la Morphologie des Orchestes, Lille, p. 6, figs. 1–13.

1893. *Orchestia Deshayesii*, Della Valle, (139) p. 507, pl. ii. fig. 5, pl. xv. figs. 15–30, pl. lvii. figs. 70–73.
1893. *Talorchestia Deshayesii*, Chevreux, Bull. de la Soc. Zool. de France, vol. xviii. p. 127, fig. in text.
1899. *Talorchestia Deshayesii*, Stebbing, "Amphip. from Copenhagen Mus. and other sources, Pt. 2," Trans. Linn. Soc, 2nd ser. Zool. vol. vii. p. 400, pl. xxx. A.

Barrois, in his paper referred to, gives very useful illustrations of the change of form in the second gnathopods of the male during successive stages of growth; and Stebbing, also in the last-quoted memoir, figures the gnathopod of a young male.

Hab. Ryhope, Co. Durham (*A. M. N.*): *Mus. Nor.* Mount Batten, Devon (*Parfitt*), sandy shores of North Devon (*Stebbing*).

Distrib. Adriatic (*Prof. Heller*); Naples (*Della Valle*): *Mus. Nor.* Denmark (*Meinert*); Holland (*Hoek*); Western France (*various authors*); Mediterranean (*various authors*), Black Sea (*Czerniavsky*). East coast of Africa (*Hilgendorf*).

16. *Orchestoidea brito* (Stebbing).

1891. *Talorchestia brito*, T. R. R. "Stebbing, Sessile-eyed Crustacea," Ann. & Mag. Nat. Hist. ser. 6, vol. viii. p. 327, pl. xv.

Hab. Woolacombe Sands, near Ilfracombe, North Devon (*Stebbing*): *Mus. Nor.* Saunter Sands, North Devon (*Stebbing*).

Distrib. Mouth of the Gironde, France (*Chevreux*).

Undoubtedly the two preceding species belong to the same genus. That described by Stebbing was placed by him in the genus *Talorchestia*. Chevreux finding the gnathopods of *Orchestia Deshayesii* in their general character corresponded with those of *O. brito*, removed the former species to *Talorchestia*, and in this he has been confirmed by Stebbing. This allocation of the forms I cannot but regard as mistaken. To take Stebbing's characters of two closely-allied genera:—

Talorchestia. First gnathopods subchelate in the male, simple in the female; second gnathopods strongly subchelate in the male.

Orchestoidea. First gnathopods simple in the male and female; second gnathopods strongly subchelate in male.

I am at a loss to understand how the first gnathopod male of *Talorchestia brito* and *Orchestia Deshayesii* can be called subchelate. This expression implies a palm against which the finger can close. Where is such a palm in these gnathopods? There is a tubercle near the extremity of the hand, but if the gnathopod possesses any grasping power I take it that it would be by the approximation of this tubercle with another which is situated on the wrist; but if this is so it would make the limb not subchelate but complexly subchelate. Exa-

mining my North Atlantic allied forms I find *Talorchestia longicornis* (Say) and *Talorchestia megalophthalmus* (Bate) from N.E. America (received under these names from S. I. Smith) to be true *Talorchestiæ*, in which the males have the first gnathopods subchelate and similar in structure to those of *Orchestia*, and thus quite different from the two species we are now considering. From Cadiz I have examples of *Orchestoidea Fischerii* (M.-Edwards) given me by Signor Bolivar under that name. In this species, as in those which I here call *Orchestoidea Deshayesii* and *Orchestoidea brito*, there is a close correspondence in the character of the first gnathopod male, which is not subchelate, for the end of the hand is not expanded to receive the impact of the finger, but both the hand and the wrist bear a tubercle on the margin. These tubercles may prove general throughout the genus; but whether they exist in the type *Orchestoidea tuberculata*, Nicolet, I have no means of ascertaining. It is a question whether the two genera ought to be maintained. It is not necessary to go beyond Stebbing's species in the paper referred to, where in *Talorchestia novæ-hollandiæ*, Stebbing, we have a characteristic species of *Talorchestia*, in *T. Deshayesii* what I take to be an *Orchestoidea*, and in *T. tridentata*, Stebbing, an intermediate form, but one which, if the genera are to be kept distinct, must be retained in *Talorchestia*.

Fam. II. **Lysianassidæ.**

Genus 1. Normanion, J. Bonnier.

= *Normania*, Boeck (*nec* Bowerbank).

17. *Normanion quadrimanus* (Bate & Westwood).

1868. *Opis quadrimana*, Bate & Westwood, (1) vol. ii. p. 503.
1876. *Normania quadrimana*, Boeck, (138) p. 188, pl. vi. fig. 3.
1890. *Normania quadrimana*, Sars, (142) p. 32, pl. xiii. fig. 1.
1893. *Normanion quadrimanus*, J. Bonnier, "Les Amphipodes du Boulonnais, III.," Bull. Sci. France et Belgique, vol. xxiv. p. 167.

Hab. Isle of Cumbrae, 20–25 fath. (*A. M. N.*): *Mus. Nor.* Near Devaar Island, Firth of Clyde (*T. S.*).

Distrib. South and West Norway (*G. O. Sars*).

Genus 2. Acidostoma, Lilljeborg.

18. *Acidostoma obesum* (Bate).

1861. *Anonyx obesus*, Bate & Westwood, (1) vol. i. p. 98.
1865. *Acidostoma obesum*, Lilljeborg, "On *Lysianassa magellanica* and *Amphipoda lysianassina*," Nov. Act. Soc. Sci. Upsal. ser. 3, p. 34, pl. v.
1890. *Acidostoma obesum*, Sars, (142) p. 38, pl. xiv. fig. 2.

Hab. Shetland (*A. M. N.*); Banff (*T. Edward*): *Mus. Nor.* Isle of Cumbrae (*D. R.*); St. Andrews (*McIntosh*); between

Fidra and Bass Rock, Firth of Forth (*T. S.*); Salcombe (*Stebbing*).

Distrib. Trondhjem Fiord, 20–40 fath. (*A. M. N.*): *Mus. Nor.* South and West Norway (*G. O. Sars*); Bohuslän, Sweden (*Lindström*); West France (*Chevreux*).

Genus 3. Ichnopus, Costa.

19. *Ichnopus spinicornis*, Boeck.

1860. *Ichnopus spinicornis*, A. Boeck, Forh. ved de Skand. Naturf. 8de Möde i Kjobenhavn, p. 645.
1867. *Ichnopus calceolatus*, Heller, Beit. z. Kennt. der Amphip. des Adriat. Meeres, p. 20, pl. ii. figs. 26–28, ♂.
1872. *Ichnopus spinicornis*, Boeck, (138) p. 124, pl. ii. fig. 3, and *I. minutus*, p. 126, pl. iii. fig. 7.
1890. *Ichnopus spinicornis*, Sars, (142) p. 40, pl. xv.

Hab. A single specimen taken off Valentia, Ireland, by the 'Porcupine,' 1869 (*Mus. Nor.*).

Distrib. Haakelsund in Kors Fiord and Trondhjem Fiord, Norway (*A. M. N.*); West Norway (*G. O. Sars*): *Mus. Nor.* This Trondhjem Fiord locality is the most northern range as yet known to Sars. South-east of Belle-Ile, 130–160 metr. (*Chevreux*); Gulf of Marseilles (*Marion*); Adriatic (*Heller*).

Genus 4. Lysianax, Stebbing, 1888 (Rep. Chall. Amphip.).

= *Lysianassa*, M.-Edwards (preoccupied).

20. *Lysianax septentrionalis*, Della Valle.

1861. *Lysianassa Costæ*, Bate & Westwood, (1) vol. i. p. 74, ♀.
1861. *Lysianassa longicornis*, Bate & Westwood (nec Lucas), (1) vol. i. p. 85, ♂ (partim) *.
1872. *Lysianassa Costæ*, Boeck, (138) p. 118, pl. iv. fig. 1, ♀.
1872. *Lysianassa plumosa*, id. ibid. p. 116, pl. iii. fig. 5, ♂.
1890. *Lysianassa Costæ*, G. O. Sars, (142) p. 42, pl. xvi. fig. 1.
1893. *Lysianax septentrionalis*, Della Valle, (139) p. 778.

Della Valle makes it clear, in my opinion, that the above species cannot be the *Lysianassa Costæ*, H. Milne-Edwards. That species is too imperfectly described and figured to be recognizable; but it can scarcely be our northern species, as here understood—*first*, because the third segment of the metasome is not produced in hook-like form; *secondly*, because it was found among seaweeds at Naples; and Della Valle has not met with anything like our northern *Lysianassa* at Naples. He thinks it possible that M.-Edwards's species may be the same as that which he has himself described under the name *Lysianassa bispinosa*.

* Judging by the telson, the figures of the entire animal and of the urosome cannot have been taken from this species. *Vide* Walker, Ann. & Mag. Nat. Hist., Feb. 1892, p. 136.

Hab. Isle of Skye; Moray Firth; Isle of Cumbrae; off Berwick; Guernsey; 'Porcupine,' 1869, St. 3, west of Bantry, Ireland, 722 fath.: *Mus. Nor.* Valentia, Ireland (*A. O. W.*); Isle of Müll (*G. Brook*); Loch Fyne (*Sir J. Murray*).

Distrib. West coast of Norway, in 50–100 fathoms (*Sars*); Atlantic coast of France (*Bonnier and Chevreux*).

21. *Lysianax ceratinus*, Walker.

Lysianax ceratinus, A. O. Walker, "Third Report on Higher Crustacea," Fauna of Liverpool Bay, vol. iii. p. 200, pl. x. figs. 1–8.

Since the date of this publication the species has been frequently named in Mr. Walker's papers as *Lysianax longicornis* (Lucas), which, however, was an erroneous assignment of the form, as he has subsequently stated. I have considerable doubts as to the specific distinction of this form from *L. septentrionalis*, since specimens occur apparently intermediate with only a small spine point on the hinder margin of the third segment of the metasome, instead of the large upturned process of typical *L. septentrionalis*.

Hab. This seems to be a much more abundant form on our coasts than *L. septentrionalis*. Isle of Skye; Firth of Clyde; Berwick-on-Tweed; Plymouth; Guernsey; Strangford Lough, Ireland; Clew Bay, Co. Mayo (*A. M. N.*); Valentia, Ireland (*A. O. W.*); Salcombe, Devon (*Stebbing*); *Mus. Nor.* Liverpool district and Jersey (*A. O. W.*) *.

Distrib. Several localities, west coast of France (*Chevreux*).

Genus 5. Socarnes, Boeck, 1870.

22. *Socarnes Vahlii* (Kröyer).

1838. *Lysianassa Vahlii*, Kröyer, Grönlands Amfipoder, p. 5.
1844. *Anonyx Vahlii*, Kröyer, Naturhist. Tidssk., 2 Række, vol. i. p. 599; Voyage en Skand. &c. pl. xiv. fig. 1.
1872. *Socarnes Vahli*, Boeck, (138) p. 129, pl. vi. fig. 8.
1890. *Socarnes Vahli*, G. O. Sars, (142) p. 44, pl. xvi. fig. 2.

Hab. Off Clack Rock, Isle of Cumbrae (*D. R.*); Firth of Forth, very rare (*T. S.*).

Distrib. Greenland; 'Valorous,' 1875; Tromsö (*Schneider*): *Mus. Nor.* Spitsbergen; Novaia Zemlia; Kara Sea; Iceland; Finmark; northern coasts of Norway.

23. *Socarnes erythrophthalmus*, Robertson.

1892. *Socarnes erythrophthalmus*, D. Robertson, Second Contribution towards Cat. of Amphip. and Isop. of Firth of Clyde and West Scotland, p. 6.
1893. *Socarnes erythrophthalmus*, J. Bonnier, "Les Amphipodes du Boulonnais," Bull. Sci. de France et Belgique, vol. xxiv. p. 183, pl. vi. figs. 1–10.

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* Where in recent years *Lysianassa longicornis* has been given as a British species there should be read instead *L. ceratinus*.

Hab. Oban; Falmouth, in great abundance on dead fish in a crab-pot (*A. M. N.*); Banff (*T. Edward*); Clyde (*D. R.*); Menai Strait (*A. O. W.*); Ardbear Bay Ireland (*G. S. Brady*): *Mus. Nor.* Isle of Man and Valentia Harbour, Ireland (*A. O. W.*).

Distrib. West coast of France (*Chevreux and Bonnier*).

Genus 6. Ambasia, Boeck.

24. *Ambasia Danielsseni*, Boeck.

? 1861. *Lysianassa atlantica*, Bate & Westwood, (1) vol. i. p. 82.
1870. *Ambasia Danielsseni*, A. Boeck, (137) p. 17.
1872. *Ambasia Danielsseni*, A. Boeck, (138) p. 121, pl. iii. fig. 6.
1890. *Ambasia Danielsseni*, G. O. Sars, (142) p. 46, pl. xvii. fig. 1.
1898. *Ambasia Danielsseni*, Walker, "Malacostraca from the West of Ireland," Trans. Liverpool Biol. Soc. vol. xii. p. 166.

Hab. Mr. Walker, in the last-mentioned paper, records *Ambasia* as taken off the south-west of Ireland in 750 fathoms. The specimen is preserved in the Dublin Museum of the Royal Irish Academy.

Distrib. Trondhjem Fiord, Norway, in 100–300 fathoms (*A. M. N.*); West Norway (*G. O. Sars*): *Mus. Nor.* Though rare, found by Sars in several places on the south and west coasts of Norway and as far north as Hammerfest in Finmark.

It is not improbable that the *Lysianassa atlantica*, Bate and Westwood, may be the male of *Ambasia Danielsseni*, the greater length of the filaments of the antennæ being a character distinctive of the male sex. The remarkable character of the first joint of the antennules, the form of the head, the structure of the gnathopods, all closely agree with *Ambasia*. It is true that the telson is described as "squamous and simple;" but Mr. Walker *, who has carefully examined the type in the British Museum, says that it is not so, but "cleft to the base, without lateral spines, but with a terminal spine in a deep notch in each division." If we read "deeply cleft" instead of "cleft to the base" we have in Mr. Walker's words an accurate description of the telson of *Ambasia*; and to complete the identity we learn further from Mr. Walker that "the third pleon-segment has the hinder angle acute and shortly recurved, but without a sinus."

* Mr. Walker has done excellent service in the examination of Spence Bate's specimens. His two papers on the subject are:—

1. "The Lysianassides of the 'British Sessile-eyed Crustacea,' Bate and Westwood," Ann. & Mag. Nat. Hist. ser. 6, vol. ix. p. 134.

2. "The Amphipoda of Bate and Westwood's 'British Sessile-eyed Crustacea,'" Ann. & Mag. Nat. Hist. ser. 6, vol. xv. p. 464.